

REMARKS

The issues outstanding in the final rejection mailed November 9, 2006, are the rejections under 35 USC 112 and 103. Reconsideration of these issues, in view of the following discussion, is respectfully requested.

Rejections Under 35 USC 112

Claims 16-18 have been rejected under 35 USC 112, second paragraph. Reconsideration of this rejection is respectfully requested. It is not understood why claim 16 is argued to be inconsistent with claims 17 and 18. In particular, claim 16 as rejected recited a "mixture" of zinc oxide and carbonate or nitrate, while claim 17 recited that "at least 33%" of oxide was replaced by nitrate or carbonate, and claim 18 recited that "at least 50%" of oxide was replaced by nitrate or carbonate. While the office action, at page 4, argues that the language (i.e., "at least 33%") has no upper bound, or has an upper bound of 100%, this clearly cannot be true inasmuch as claim 16 requires a "mixture." It is not seen why the office action reads the claims as inconsistent, when it is clear that claims 17 and 18 were intended to provide a lower boundary on the mixture. In any event, it is submitted that the foregoing clarifying claim amendments obviate these issues, and withdrawal of the rejection under 35 USC 112 is respectfully requested.

Rejection Under 35 USC 103

Claims 1-20 remain rejected under 35 USC 103 over Stern '946 taken with John (GB '070) and Andersen '305. Reconsideration of this rejection is again respectfully requested.

As will be recalled, Stern discloses the production of a catalyst which can be obtained by any of impregnation, mixing or co-precipitation, as detailed at the bottom of column 5. The second technique in this portion of the patent, mixing, is described by patentees as:

"Mixing of at least one zinc compound and hydrated alumina in the presence of a peptizing agent (nitric acid, acetic acid). The zinc compounds are then selected from the group that is formed by zinc oxide, zinc hydroxide, zinc carbonate, and zinc hydroxycarbonate. The mixed product is then shaped by extrusion, and then dried and calcined."

Thus, it is maintained that the patent does not teach or suggest a process in which, first, zinc oxide *and* zinc nitrate or carbonate are, as a mixture, mixed with alumina gel that has been peptized in the presence of water and nitric acid, so as to form a paste. Instead, Stern '946 discloses a process in which a zinc compound and hydrated alumina are combined in the presence of a peptizing agent (e.g., nitric acid or acidic acid) and subsequently extruded. This thus fails to teach the combination of a *mixture* of zinc oxide and zinc salt with a previously peptized alumina gel.

The final rejection argues that original claim language reciting replacing “at least a portion” of zinc oxide with zinc nitrate or carbonate reads on, not a mixture, but entirely zinc carbonate, argued to be taught in Stern. Claims 1 and 16 have been clarified in order to indicate that the mixture contains a zinc oxide with 10-50%, based on total zinc, of zinc carbonate or nitrate. This recitation is supported, for example, at page 3 lines 3-5 and Example 5 of the present specification. Moreover, new claim 21 has been added which recites a mixture of zinc oxide and zinc nitrate, and does not read on carbonate. It is thus respectfully submitted that the references fail to suggest such a process employing these materials. For example, all examples of Stern show the use of only a single zinc compound, either the oxide or nitrate. (Zinc nitrate is disclosed solely in Example 6.) Thus, it is clear that the patent does not teach the use of mixtures, as presently claimed.

John is cited for a teaching of mixing times. However, as discussed in applicant's prior reply, the catalyst preparation process of John is one of impregnation, rather than mixing as disclosed in the second embodiment of Stern, and as recited in the present claims. For example, note that John teaches a catalyst "obtainable by the impregnation of an alumina carrier material employing an aqueous zinc salt solution." See page 1, lines 26-28. See also Example 1, wherein a shaped alumina carrier is impregnated with aqueous zinc nitrate. Inasmuch as John is directed to impregnation, it is maintained that one of ordinary skill in the art would not find it to be relevant to the mixing embodiment of the primary reference, as in Stern there is no solid carrier being impregnated. On the one hand, the reaction conditions for impregnation would be expected by one of ordinary skill in the art to vary from those of the production of a gel with a peptizing agent, as disclosed in Stern.

Moreover, despite the indication in the final rejection that the office action relies only on a portion of John, and not on the fact that John is an impregnation process, it is submitted to be *impermissible* to extract such a teaching from a reference without considering the reference in its entirety. For example, see *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed.Cir. 1992), in which the Federal Circuit found that extracting teachings from several individual examples in the patent, and combining them, was impermissible since one of ordinary skill in the art would not arbitrarily disregard the entirety of the teaching of *each* example. Since such a resulting combination of all features of the examples was not the structure alleged to be obvious, the rejection fails.

It is further noted that processes of catalyst preparation by impregnation and by mixing are very different and it is not obvious to one of ordinary skill to continue them with any expectation of obtaining similar results. To introduce a high quantity of zinc in a catalyst by a mixing process, is necessary to repeat the different operations of impregnation several times (preparation and calcinations of the carrier, several impregnations with calcinations after each impregnation). In a mixing process, a single operation is required. In general, solids obtained impregnation or mixing are quite different: a layer of catalyst can be formed at the surface of the carrier material by impregnation, but in a mixing process the different compounds are closely mixed together in the bulk of the extrudate.

Moreover, the resistance to crushing of catalysts obtained by impregnation is essentially due to the mechanical properties of the carrier: if the carrier has already a good resistance to crushing, the impregnation process used to prepare the catalyst will not modify the resistance of the extrudates.

Thus, Jones does not suggest parameters for modifying the different technique of Stern, much less the partial substitution of zinc oxide by zinc nitrate or carbonate for the catalyst preparation process by mixing.

Moreover, it is again submitted that the present specification provides evidence of unexpected results which dispel any perceived conclusion of obviousness. In particular, the resistance to crushing of the present catalyst, determined as detailed at page 5 of the specification, are shown to be improved versus a catalyst which is produced from zinc oxide

alone. See comparative Example 1, and note Table 1 at page 10 of the specification showing, for catalysts in accordance with the invention, nearly double resistance to crushing in the poorest performing catalyst in accordance with the invention. This evidence provides further basis for patentability of the present claims which recite the use of such mixtures.

It is moreover noted that such unexpected results clearly establish that catalysts produced in accordance with the present invention differ physically from those known in the prior art, thus providing basis for patentability of catalyst claims 14, 15, 19 and 20.

It is argued, in the final rejection at page 3, that the “prior art of record does not teach a catalyst which is produced by mixture of zinc oxide with aluminum gel.” Regardless of the accuracy of this statement, it is submitted that such a test is *closer* than any teaching of the references, inasmuch as it differs only by the use of a mixture of zinc oxide and zinc nitrate in accordance with the invention, versus zinc oxide alone (not in a mixture) in accordance with the prior art (e.g., Stern). It is thus submitted that this test is clearly prohibitive of patentability.

Accordingly, it is submitted that the claims and the invention are in condition for allowance, and passage to issue is respectfully requested. If the examiner has any questions or comments, he is cordially invited to telephone the undersigned at the number below.

The Commissioner is hereby authorized to charge any fees associated with this response or credit any overpayment to Deposit Account No. 13-3402.

Respectfully submitted,

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